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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/553,431	04/19/2000	Katherine W. Osteryoung	920905.90041	3961

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EXAMINER

KUBELIK, ANNE R

ART UNIT	PAPER NUMBER
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1638

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/553,431	<b>Applicant(s)</b> OSTERYOUNG, KATHERINE W.	
	<b>Examiner</b> Anne R. Kubelik	<b>Art Unit</b> 1638	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10, 14-28 and 30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 3 and 8 is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-7, 10, 14-28 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____.<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input checked="" type="checkbox"/> Other: <u>Raw sequence error report</u> . |
|---|---|

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 April 2004 has been entered.
2. Claims 1-8, 10, 14-28 and 30 are pending.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825.

Sequence identifiers are missing from the Brief Description of Figure 1. Sequence identifiers must be given for each sequence shown in the figure, not just the Arabidopsis sequence.

Full compliance with the sequence rules is required in response to this Office action. A complete response to this Office action must include both compliance with the sequence rules and a response to the issues set forth herein. Failure to fully comply with both of these requirements in the time period set forth in this Office action will be held to be non-responsive.

### ***Claim Rejections - 35 USC § 112***

5. Claims 1-2, 4-7, 10 and 14-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the

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relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Neither the instant specification nor the originally filed claims appear to provide support for the phrase "MinD protein includes sequences of amino acids which, when compared by sequence alignment to SEQ ID NO:2, are identical to residues 95 to 97 and 98 to 109 respectively of SEQ ID NO:2".

Thus, such a phrase constitutes NEW MATTER. In response to this rejection, Applicant is required to point to support for the phrase or to cancel the new matter.

The rejection is repeated for the reasons of record as set forth in the Office action mailed 8 October 2003, as applied to claims 1-2, 4-5, 7, 10, 14-15, 17-18, 20-21, 23-24 and 27. Applicant's arguments filed 12 April 2004 have been fully considered but they are not persuasive.

Applicant urges that the claims have been modified to no longer recite 80% identity, even though support for that recitation was present in the specification (response pg 7).

This is not found persuasive because there is no support for the rest of the quoted phrase.

6. Claims 1-2, 4-5, 7, 10, 14-15, 17-18, 20-21, 23-25 and 27 remain rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for nucleic acids encoding a MinD protein with 92% identity to SEQ ID NO:2, plants transformed with those nucleic acids, and methods of using those nucleic acids to alter size, shape and/or number of plastids, does not reasonably provide enablement for any MinD coding sequence from any source, plants transformed with any MinD coding sequence, or methods of using any MinD coding sequence to alter size, shape and/or number of plastids, wherein the MinD protein comprises amino acids 95-109 of SEQ ID NO:2. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

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invention commensurate in scope with these claims. The rejection is repeated for the reasons of record as set forth in the Office action mailed 8 October 2003, as applied to claims 1-2, 4-5, 7, 10, 14-15, 17-18, 20-21, 23-24 and 27. Applicant's arguments filed 12 April 2004 have been fully considered but they are not persuasive.

Applicant urges that the amendment to claim a nucleic acid encoding a MinD protein with 92% identity to SEQ ID NO:2 will overcome the rejection because the Tagetes protein has 92% identity to SEQ ID NO:2 (response pg 7).

This is not found persuasive because the specification does not teach nucleic acids encoding a MinD protein comprising amino acids 95-109 of SEQ ID NO:2 within the full scope of the claims. Additionally, even the Tagetes protein does not comprise amino acids 95-109 of SEQ ID NO:2.

SEQ ID NO:1 encodes a 326 amino acid long protein. Even if the sequence of 15 amino acids is specified, making all possible single amino acid substitutions in an 326 amino acid long protein like that encoded by SEQ ID NO:1 would require making and analyzing  $19^{311}$  nucleic acids. Because nucleic acids encoding proteins comprising amino acids 95-109 of SEQ ID NO:2 would encode proteins with 311 amino acid substitutions, many more than  $19^{311}$  nucleic acids would need to be made and analyzed. Applicant has only described two sequences, and has not provided guidance for which amino acids of SEQ ID NO:2 are to be altered.

The specification also does not teach the structural features that distinguish nucleic acids that encode MinD proteins comprising amino acids 95-109 of SEQ ID NO:2 from those that encode nonfunctional proteins with comprising amino acids 95-109 of SEQ ID NO:2.

7. Claims 1-2, 4-5, 7, 10, 14-15, 17-18, 20-21, 23-25 and 27 remain rejected under 35 U.S.C. 112, first paragraph, as containing subject matter that was not described in the specification

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in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office action mailed 8 October 2003, as applied to claims 1-2, 4-5, 7, 10, 14-15, 17-18, 20-21, 23-24 and 27. Applicant's arguments filed 12 April 2004 have been fully considered but they are not persuasive.

Applicant urges that it is hoped that amendment to application to recite the 92% identity level will overcome the rejection (response pg 7).

This is not found persuasive because the specification does not describe nucleic acids encoding a MinD protein comprising amino acids 95-109 of SEQ ID NO:2 within the full scope of the claims. It only describes one such nucleic acid, SEQ ID NO:1; even the Tagetes protein does not comprise amino acids 95-109 of SEQ ID NO:2. Given the breadth of the claim, even two such nucleic acids would describe the entire scope of the claimed nucleic acids.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 10 and 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Dependent claims are included in all rejections.

It is not clear if the seed of claim 10 comprises the artificial genetic construct, as not all progeny seeds will comprise the construct with which the parent is transformed.

Claims 15-17 lack antecedent basis for the limitation "The plant of Claim 14" as claim 14 is drawn to a plant seed. Amendment will affect dependent claims 18-19.

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10. Claims 1-8, 10 and 14-28 are free of the prior art, given the failure of the prior art to teach or fairly suggest methods of altering the size, shape and/or number of plastids in plant cells by transformation with a sense or antisense MinD gene, the constructs used in that method, or the plants or seeds so obtained.

11. Claims 3 and 8 are allowed. The prior art fails to teach or suggest a nucleic acid of SEQ ID NO:1.

### *Conclusion*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Anne R. Kubelik, Ph.D.  
June 22, 2004



**ANNE KUBELIK  
PATENT EXAMINER**